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# 1.0 OPINION OF PROBABLE CONSTRUCTION COST

## 1.1 Introduction

During the Preliminary Design phase, a number of significant changes were incorporated into the Project. The physical changes to the design are primarily the result of the acquisition of additional land that became available subsequent to the submittal of the final Basis of Design Report (BODR) in April 2006. The cost implications of these changes have been incorporated in the Opinion of Probable Construction Cost (OPCC) presented herein (refer to Tables 1 and 2 for a summary of physical changes and their cost impact and estimating assumptions and clarifications, respectively). Other factors have also affected the estimate of construction cost. These include:

- The use of higher unit cost from the RS Means 2nd quarter 2006 Construction Cost Database reflecting inflationary cost increases (well documented in many publications)
- The use of union rather than open shop wages to address the anticipated tight construction labor market in 2007-2009
- The use of a contingency factor of 15% (rather than the previously used 25%) reflecting the considerable progression in the development of the design of the Project
- The use owner provided insurance coverage for workers compensation and most liability insurances
- Consideration of the possible costs related to copper remediation

In aggregate, the progression of the design, the physical changes of project features, and the additional factors noted above resulted in the calculation of an estimated construction cost of $241.3 million. This compares favorably to the estimate presented in the BODR. In fact, the Project costs presented in this report remain within the current District budget.

## 1.2 Division of Work

An important recommendation presented in the BODR was that the District should consider the use of multiple contracts for the construction of the Project. As noted in the BODR, some of the benefits to the District of multiple bid packages include:

- Greater competition due to the effect of reducing the size of any given contract. This also promotes greater competition because it addresses a common preference of general contractors, i.e., many would rather not perform work as a sub-contractor to a large earthmoving general contractor
- Elimination of double markups on large subcontracts

- Significantly more management and construction worker resources available for the Project from multiple contractors working on the Project
- Less reliance on the performance of a single construction company to meet all of the Project's technical and schedule demands, and
- The ability to structure bid packages around the special construction expertise required for each scope of work.

HDR reiterates this recommendation and further recommends that the District make a final decision regarding the make-up of the construction package at the conclusion of this Preliminary Design phase. This would allow subsequent contract documents to properly consider contract limits and appropriately consider sequence of construction issues.

After review of the current bidding climate, the type of personnel and equipment resources required, and particularly the past experience of the potential bidders necessary for each phase of the Project, we have based the OPCC and Construction Schedule presented in this report on the following contract breakdown:

- **Reservoir** – the Reservoir construction will encompass the area bounded by the Project northern, southern, western limits, and a north south dividing line between the Reservoir eastern seepage/drainage canal and the STA distribution canal; the intake canal and permanent access road construction; demolition of the existing TIWCD Pump Station at C-44 in easement 5; and construction of a new permanent TIWCD Pump Station.
- **Reservoir Pump Station** – will include all divisions of construction within defined excavation limits to build the structure, backfill to existing grade or higher, furnishing and installing a 72" discharge pipe in the embankment to be constructed by the Reservoir contractor, Reservoir Pump Station discharge structure within the Reservoir, and the sheet pile wing walls on the south side of the Pump Station in the inlet canal.
- **Stormwater Treatment Area Cells** – construction will be bounded on the west by the north south limit described above, on the north and east by project limits; and on the south by a project line approximately 25 feet north of Citrus Blvd.
- **Citrus Boulevard Improvements** - construction of the new Citrus Blvd bridge over the intake canal, construction of the new Easement No. 1 box culvert, new weir outlet structure for Easement No. 1 at the C-44 canal, reshaping and rip-rap of the existing Easement No. 3 canal from 25' north of the Citrus Blvd to C-44.

It will be important for the District to take proactive measures to ensure the highest level of contractor interest in the C-44 Reservoir/STA Project if all of the possible benefits of the multiple contractor packages are to be achieved and the Project budget met. These measures should include an announcement about the Project in the Fall of 2006 in all major construction publications and with all major contractor associations such as ABC and AGC indicating major work groups and the anticipated bid schedule. Also, the

District should consider convening a project open review/open house for interested contractors in late October or early November 2006, which would include a Project site tour, a detailed presentation by HDR of the major elements of the Project, and a Question and Answer session with District staff and HDR. If such a session were held, the presentation by the District and HDR should also include a specific bid and construction timeline so that interested contractors that are capable of meeting the technical and management challenges of the Project can plan for the C-44 Reservoir/STA Project in their Spring 2007 estimating calendar. This would also allow the contractors to assess the impact of a successful bid on their 2007-2009 construction program.

## 1.3 Discussion of Contingency, Mark Ups, and Master Construction Insurance Program

As was stated in the BODR, past experience has shown that a contingency percentage for "undefined scope of work" is dependent on the true level of the design team's project definition and the information exchanged between the design team and estimating team members. A "Contingency" of 25% is recommended in DCM-7 (February 3, 2006) for use in the Preliminary OPCC. The estimate developed by HDR for this phase of the Project incorporates a 15% contingency. This reflects the Project Team's confidence in the level of design at this point in the process, the use of the union wage base from the RS Means database, and the recent confirmation of existing site conditions from the Test Cell Program. During the preparation of the Preliminary Design phase OPCC estimate and schedule, HDR continued to maintain close cooperation and communication between our engineering and cost estimating teams – this was achieved through frequent meetings and the submittal of increasingly detailed drawings and sketches throughout the period of design. The solicitation of vendor and subcontractor budget estimates was expanded as the definition of scope increased and additional experienced estimating resources for specific scopes of work were engaged, e.g., the STA power distribution. In addition, the results of the Test Cell program confirmed that site conditions will not vary significantly from those identified in the previously completed geotechnical investigations meaning that design assumptions from the BODR will in most cases remain valid.

By using the union rather open shop wage bases for the Preliminary Design phase OPCC, the estimate better reflects the wage level that the successful contractors will be paying to compete in the labor short Florida construction market. Consistent with a commitment made in the BODR, HDR estimators have continued to monitor construction cost forecasting literature, which still indicates that material cost increases such as cement and fuel, will moderate during the 2007-2009 construction period.

Specific below the line percentages reflected in the preliminary OPCC are as follows:

- **Field General Conditions and Mobilization (FGC)** – Percentage applied to total direct cost to cover Jobsite Supervision, Small tools and supplies, contractors quality control and mobilization – 9% for Reservoir, STA, and Easement construction; 6% for Reservoir Pump Station construction.
- **Sales Tax (ST)** – Percentage applied to material and equipment.

- **Contractor Fee or Gross Profit (Fee)** – Percentage applied to the sum of direct cost, sales tax and field general conditions {(Direct cost +FGC+ST) x Fee %} for office overhead and profit – 15% for Reservoir, STA, and Easement construction, 12% for Reservoir Pump Station construction.
- **Bonds and Insurance (BI)** – Percentage applied to the sum of direct cost, sales tax, field general conditions and fee {(Direct cost+ FGC+ ST+ Fee) x BI%} for bonds and Builders Risk insurance – 1.5%.

The Preliminary Design phase OPCC also reflects an adjustment to the normal labor burden, workers compensation insurance plus average fixed overhead (as defined in RS Means), to reflect the District's intention to require all contractors and every tier of subcontractor to participate in the Florida Municipal Construction Insurance Trust, Master Construction Insurance Program (MCIP). This program will replace the individual firm's insurance coverage for worker's compensation, employer's liability, general liability and excess liability and will be paid for entirely by the District. Therefore, the estimate includes a total labor burden of 14.28% in the Current Construction Estimate Total. We have applied a 4% multiplier, provided to HDR by the District, to the Current Construction Estimate Total to reflect the anticipated cost of this program to the District.

## 1.4 Cost Estimate Variance Report

In discussions with the District during the Preliminary Design phase, HDR requested and the District agreed, to forego the preparation of a detailed estimate variance report, as described in DCM-7. This request was made in consideration of the changes that have occurred since the submittal of the final BODR. Subsequent OPCC's at the Intermediate and Final Design stages will include the detailed variance report described in DCM-7. Also, as previously noted, a summary of significant design changes with a narrative comment on their cost impact is presented in Table 1.

## 1.5 Cost and Budget Summary

Included with the enclosed supporting documentation are two Excel Summary pages from the detailed OPCC. One provides a detailed summary for each component of the Project and is exactly like the summary presented in the BODR – this allows the reviewer to conveniently compare and analyze the two estimates. The other summary page groups the component cost estimates into the proposed multiple contract breakdown suggested in Section 1.2 above – this provides insight into the total contract value of each proposed contract.

## 1.6 Support Documentation

The OPCC presented herein provides detail for the same components presented in the BODR OPCC estimate. These include:

- Reservoir Construction

- Reservoir - Project General Requirements
- Reservoir Discharge
- Reservoir - Intake Canal
- Reservoir TIWCD Permanent Pump Station
- Stormwater Treatment Area
- Easement Construction (Citrus Boulevard Improvements)
- Reservoir Pump Station
- Temporary Reconfiguration of TIWCD Facilities

In order to improve the presentation of the current OPCC details, such as unit cost and quantities, we have elected to incorporate the detailed cost lines from RS Means into the individual project component Excel spreadsheets. We have grouped these under a scope of work description line to allow better analysis of the specific project design features included within each project component. In the first presentation, component mark-ups are added at the bottom in the manner described previously. In addition, we have provided a second component cost breakdown, again on a line item basis, which rolls all the mark-ups in a total cost column, which is divided by the line quantity for a quick comparison with other cost summaries, such as the Florida Department of Transportation.

In addition to the support documentation noted above, Vendor and Subcontractor Quotations are included in the Preliminary Design Report Documentation CD that is being provided separately.

## 1.7 Possible "Value Engineering" Opportunities

Throughout the Preliminary Design phase, the Design Team conducted a number of cost evaluations. The Team has identified a number construction items that may result in cost savings. Some of these items may require a deviation or variance of current District Standards. The items will be presented at the scheduled formal Value Engineering session that is scheduled for the middle of this month.

# TABLES

## Table 1
## Significant Design Changes from the BODR to Preliminary Design

| Component | BODR | Preliminary Design Modification | Cost Impact Narrative |
|---|---|---|---|
| **Project Configuration** | Total acreage:11,943 | Total Acreage: 12,160 | Increase in grading cost |
| | Minton and Star Farm not included | Addition of 940 acres of Minton and Star Farms | Net increase in acreage will adversely impact budget |
| | | Selling of 1,157 acre exchange parcel | No Impact |
| | | Revise Project layout based on new property arrangement | The length of berms and canals in the final layout will determine the final cost impact of this change. |
| | Tree Removal by Contractor | Tree Removal by Property owner | Reduction of $12,220,600 in BODR estimate minus cost of rooting raking in STA of $900,300 for a net reduction of $11,320300 |
| | | | |
| **Site Characterization** | Exploration and testing program to evaluate site subsurface conditions | Additional explorations to evaluate new property and structure locations | Preliminary Level design details have provided important new data permitting a more accurate estimating of subsurface conditions |
| | | | |
| **Pump Station (S-401)** | Option of electric or diesel drivers | Decision to proceed with water cooled 1750 HP, 300 RPM motors has allowed HDR to obtain budget pricing from all major motor manufacturers | These changes combined with further design of pump station details has resulted in a $14 M cost reduction. |
| | Located inside embankment | Re-located outside embankment; 72-inch discharge pipe through embankment. This change has significantly reduced the civil construction quantities and the PS cost | |
| | | Minimum water elevation in suction bay: 8' NAVD | |

**Table 1**
**Significant Design Changes from the BODR to Preliminary Design**
**(Continued)**

| Component | BODR | Preliminary Design Modification | Cost Impact Narrative |
|---|---|---|---|
| **Intake Canal** | Bottom width 40', 4' fill for entrance road | Bottom width 60', entrance road fill of 8',, large stormwater drainage ditch on eastern side of road with connections to intake canal, cable guard rail on east side of existing TIWCD entrance road | Approximate cost increase of $4 M |
| **Reservoir** | 3,400 acres | No Change | Reservoir Cost reduction of approximately $17 M |
| | Embankment length 50,400 | Embankment length 48,697 | |
| | | Added approximately 49,000 Lf of 6' chain link fence around the reservoir and pump station | |
| | Internal dike | No internal dike | |
| **Reservoir Discharge Structure** | Located in central area of east embankment | Relocated to NE corner of reservoir, increased design detail | Minor net cost increase of $114,000 |
| **Reservoir Seepage Canal** | Bottom elevation 10.0' NAVD | Bottom elevation 12.0' NAVD | Cost impact reflected in reservoir cost change provided above. |
| | Bottom width 20 ft | Bottom width 10 ft | |
| **Reservoir Seepage Collection Outlet Structure to Intake Canal** | Gated culverts | Broad crested spillway 47.5 ft long; crest elevation 20.0' NAVD | Cost impact reflected in reservoir cost change provided above. |

**Table 1**
**Significant Design Changes from the BODR to Preliminary Design**
**(Continued)**

| Component | BODR | Preliminary Design Modification | Cost Impact Narrative |
|---|---|---|---|
| **STA** | Embankment length 167,200 | Revised layout due to land changes; embankment length 169,426 feet | Total net impact of changes to the STA construction resulted in a cost of increase of approximately $22 M |
| | 2 to 4 gated inlets per cell | 2 or 3 gated inlets per cell | |
| | 2 to 4 outlet weirs per cell | 2 or 3 adjustable outlet weirs per cell | |
| | Equalization basin at outlet weirs; flow to 5' R.C.P | No equalization basins at outlet weirs; flow from weirs to two(2) 4x4 box culverts | |
| | 10' wide earth weirs for hydraulic flow control inside the STA Cells | Regrading of the STA cell interiors, disking of the cut grove beds, filling of the ditches from waste canal excavation and regrading of all grove beds | |
| | small generators at each inlet end to power motor operated inlet gates | Overhead 460v power distribution through out STA | |
| | | Added approximately 115,000 LF of 14' wide stone drives for access with the STA | |
| | manually operated gates auxiliary outlet gates | motor operated gates at all cell inlets and auxiliary outlets | |
| **Distribution Canal to STA** | | Re-routed due to project layout change | Cost impact reflected STA adjustment provided above |
| | Bottom elevation 19.5 NAVD | Bottom elevation 18.5' NAVD | |
| | Max water elevation 29.4 NAVD | Max water elevation 30.8 NAVD at discharge structure | |
| **Distribution Canal Auxiliary Spillway** | Located at north end of Intake Canal; discharge to Intake Canal | Re-located to northeast end of distribution canal; discharges to STA seepage collection/discharge canal | Cost impact reflected in STA cost |
| | Broad crested spillway 110' wide, crest elevation 30.5' NAVD | Broad crested spillway 60' wide, crest elevation 28.8' NAVD | |
| **Seepage Collection/STA** | | Re-routed due to project layout change | Cost impact reflected in STA cost |
| | Bottom elevation 10' NAVD | Bottom elevation 12' NAVD | |

**Table 1**
**Significant Design Changes from the BODR to Preliminary Design**
**(Continued)**

| Component | BODR | Preliminary Design Modification | Cost Impact Narrative |
|---|---|---|---|
| **Discharge Canal** | Bottom width 30' NAVD | Bottom width 25' NAVD | |
| **Site Discharge** | Gated control structure and spillway at Easement 1 and Easement 3 | Weir and gated structure (S-404A,B) at Easement 3 equal in size to both gated structures of BODR, Broad crested weir 120' wide, crest elevation 19.5' NAVD, gated structure: two 15' wide gates, crest elevation 16.0' NAVD | Cost impact reflected in STA cost |
| | Small outlet at interface of easement #3, Western outlet, and C-44 | Larger outlet weir at interface of easement #3 and C44 | Cost impact reflected in Easement Cost |
| **Interior Drainage Canals (for FPL easement)** | Single canal | Two parallel canals | Cost impact reflected in STA cost |
| **Electrical** | Feed site electrical distribution from Pump Station, minimum site electrical distribution | Feed site electrical distribution from FPL substation | Cost impact reflected in STA cost |
| | Emergency generator 4160 volts | Emergency generator 480 volts | Cost impact reflected in Reservoir PS cost change |
| **Easement Construction( Citrus Blvd to C44)** | New box culverts at easement #1, #2, minimal regrading of existing easement canals | Eliminated work at easement #2, increase size and depth of box culverts at easement #3, new canal profile for easement #3 | Net impact of easement changes $1 M |

## Table 2
## Estimating Assumptions and Clarifications

| Worksheet | Facilities | Scope of Work | Comments |
|---|---|---|---|
| **Reservoir Construction** | Erosion Control for the reservoir construction | | |
| | Strip and Stockpile Vegetation | Strip and stockpile Vegetation under the embankment, dike area and for borrow areas | Strip to limits of undercut and spread inside reservoir |
| | Demolition of existing facilities within reservoir | Existing wooden weirs to be removed and burned. | Existing drainage canal on the east side of the reservoir area to be left in service to provide flow from the Reservoir PS to the Reservoir Discharge structure during start up |
| | Spread Stockpiled Vegetation | Haul Vegetation from Stockpile and Spread in areas to be sodded or waste in reservoir | Spread inside reservoir |
| | Undercut to consolidate the earth under Embankment and Dike Area | Undercut 4' deep for entire width of embankment and dike | Material can be used for embankment construction |
| | Construct Embankment | Excavate and haul type 1 from borrow areas inside reservoir; Place and compact material in embankment using type 1 | Borrow depth can not exceed 4' deep inside reservoir |
| | Blanket Drain with slotted Pipe and 2 outlets every 800' | Furnish and Install Ortona Sand for 3'x12' Blanket Drain with 6" slotted Pipe and 2-6" outlets every 800' | Ortona or equal sand material or equal, drain pipe is 6" and slotted; outlet pipe is 6" and solid |
| | Furnish and Install Chimney Drain | | Ortona or equal sand material |
| | Soil Cement Protection For Reservoir Embankment | Soil Cement Protection on the reservoir side, half flat plate half stair step and crest of the embankment | Crest elevation 58.5, Soil cement is 16" single lift for flat plate portion, 12" steps and 8' deep for stair step |
| | Sodding | Outside of Embankment from crest to Access Road; Access road to waterline of Toe swale; Waterline of tow swale to 10' beyond top of swale; Waterline of SPCOL Canal to 10' beyond top on both sides | |

**Table 2**
**Estimating Assumptions and Clarifications**
(Continued)

| Worksheet | Facilities | Scope of Work | Comments |
|---|---|---|---|
| | Construct Access Road around Reservoir | Construction 24' wide, 16" thick compacted stone access road at bottom of outside slope | |
| | Construct Toe Swale outside of access road | Excavate and slope on 3 to 1 | Spread dirt towards property line |
| | Toe Swale Outlets to SPCOL Canal | Furnish and Install 36" R.C.P pipe between toe swale and SPCOL canal, Include box on inlet side and headwall on outlet 500' O.C | |
| | Strip and Stockpile Vegetation over the area for the Seepage and collection (SPCOL) canal | 10' beyond top of Canal in both directions, spread towards property line | |
| | Construct SPCOL canal | Excavate Type 1 and Haul to Embankment ; Excavate Type 2 and stockpile to dry | Type 2 to be used in bottom of SPCOL canal for 2" seepage blanket |
| | Haul dry Type 1 from stockpile to pug mill area | | |
| | Construct Weir and Gated intersection of SPCOL with Inlet Canal | Concrete Weir structure at Elev. 15.0 to gated outlet box; 2 - 72"' R.C.P, invert 7.0 to Intake Canal; 2 Manually operated Slide Gates; Rip Rap slope protection at outlet | |
| | Embankment Piezometers Wells | Install 3-6" Well groups, 1000' O.C., 26',36',50' deep in the embankment | |
| | Seepage Piezometers Wells | Install 6" wells, 50' deep, 2000' O.C., 300' from CL of Embankment | |
| | Site restoration | Site restoration of the reservoir site from toe swale of embankment to property line, with seeding | Except for the SPCOL canal which is sodded from waterline to 10' outside top edge, Type 2 material to be spread in place. |
| | | | |

**Table 2**
**Estimating Assumptions and Clarifications**
(Continued)

| Worksheet | Facilities | Scope of Work | Comments |
|---|---|---|---|
| **Reservoir-Temporary Construction Facilities** | Project Office, Laydown, and Staging Areas | 12" stoned areas, 4 AC | |
| | Project Field General Conditions and Facilities | | Percentage |
| | Soil Cement Support Facilities Cost | Storage silos and foundations, water, electrical, gravel, truck handling, pugmill, conveyors, number of reset ups for pugmill, hauling of cement to pugmill | |
| | Haul Roads | 95000 LF, 12' wide, Maintain an average of 24 months | |
| | Well Sites for Water | $ for Pug mill, one for office Site | |
| | Demo existing Test Cell construction | Break up and haul soil cement to interior of new reservoir, 6725 CY, Load, haul existing shelly rock on roads and lay down area | |
| | Pump water out of test cell | Estimated 3.9 M gallons | Pump into existing irrigation ditches with adequate erosion control measures in place to prevent siltation |
| | | | |
| **Reservoir Discharge** | | | Inside dimensions 30'x10', FF Elev. 21.0, Top Elev. 58.5 |
| | Decant Intake Channel | Excavation and Concrete | 35' widex30'long, concrete lined |
| | Decant Structure SOG | Excavation and Concrete | 23'x43'3' |
| | Decant Structure Walls | Concrete | 34.5' tall, 18" avg.. thickness |
| | Access Bridge | Concrete | H20 loads, 16' wide, 96' long, barrier rails on sides |
| | Box Culverts - 2 Ea | Concrete, RipRap at connection to SPCOL | 6'x6' ID, 2' SOG, 2'6" Top, 2' walls, 200' long, 2' concrete water seepage collar, 50' O.C. |
| | Decant Gates | 60"x60", Wall thimble, Flr Stand, Manual Operator | |
| | | | |

**Table 2**
**Estimating Assumptions and Clarifications**
(Continued)

| Worksheet | Facilities | Scope of Work | Comments |
|---|---|---|---|
| **Reservoir Intake Canal** | Connection to C-44 | Excavate Final Plug with Dragline, 30'; Place Rip Rap on slope first 30' with clamshell | |
| | Erosion Control for the Intake Canal construction | Silt Fence and Holding ponds | |
| | Strip and Stockpile Vegetation | Strip and stockpile Vegetation for entire length of canal to 20' beyond top both sides | Strip back 20' beyond the top of bank |
| | Excavate Canal | Excavate Canal material, Haul Type 1, elev. 26 to 16, to build entrance road, Type 2 to be stockpiled and than spread to the east of the entrance road and grassed or used to build the 2' seepage blanket in the bottom of the western SPCOL canal | |
| | Place stripped Vegetation | Haul from Stockpile and Spread Vegetation on top of Type 2 before grassing, Haul balance to Buffer Area | 3 to 1 slopes |
| | Sodding | 20' strip either side and slope sides of canal to waterline 50' of intake | |
| | Rip Rapping | Furnish and Place 200# or greater rip rap on slope sides for last 50' to intake | |
| | C-44 Canal interface | Rip rap to extend 10' along C44 and 30' along the intake canal for both sides | |
| | Miscellaneous FPL Power line relocations | Allowance only, not a quote from FPL | $500,000 Allowance from FPL |
| | Entrance Road off of Citrus Blvd to Primary PS and TIWCD PS | 9" crush stone base, 3 1/2" asphalt pavement | |
| | | | |

**Table 2**
**Estimating Assumptions and Clarifications**
(Continued)

| Worksheet | Facilities | Scope of Work | Comments |
|---|---|---|---|
| **TIWCD Permanent Pump Station and Temporary Reconfiguration during Construction** | | | |
| **Temporary TIWCD Configuration during Project construction** | Reinstall pumps, drives, fuel tanks at sites 1 and 5 based on Temporary Reconfig layout | Pumps, drives and fuel tanks to be purchased, pads to be concrete. | Fuel tank sized for three days |
| | Remove all construction installed for the temporary bypass pumping | Turn Pumps, drives and fuel tanks over to the District | Pipe, valves, concrete, barriers, manatee protection, to be removed from the site |
| | Install flow control box at x-section of drainage ditch from new reservoir const. and Running W irrigation ditch | 6'x6' precast box, 10' tall, 54" R.C.P from box to Running W, 54" canal gate, manual | Demo after completion of the reservoir |
| **TIWCD Permanent Pump Station** | Site Work | 12" compacted stone access road off of Minute Maid road, 20'12'x12" SOG for diesel fuel tank, grassing of all disturbed areas | |
| | Intake | Poured concrete intake structure within the reservoir inlet canal, sheeted excavation to install intake pipe, 42" SpiralWeld steel, connected to pump cans for vertical turbine low lift pumps | |
| | Pump Station | 3-low lift vertical turbine pumps in cans, diesel drives, 20'x45' SOG, steel frame shed with galv metal roofing | |
| | Outlet | Poured concrete distribution box with straight edge weir to TIWCD distribution canal, rip rap spill way, 36" CMP overflow outlet to Running W ditch. | |

**Table 2**
**Estimating Assumptions and Clarifications**
(Continued)

| Worksheet | Facilities | Scope of Work | Comments |
|---|---|---|---|
| | Electrical | Adequate courtesy lighting for 24 hour operation, sufficient power for fuel supply and return plus all other diesel pump operations, NO instrumentation or SCADA | |
| **Easement # 5 Demo** | Easement #5 - Demo PS Mechanical equipment and systems | | |
| | Easement #5 - Demo PS Structure and concrete | | |
| | | | |
| **STA Construction** | | | |
| | Erosion Control for the STA construction | | |
| | Adjust grade differences with each Cell of the STA | Fill in existing irrigation ditches by cutting and filling, without compaction, from the growing areas into the adjacent ditches. Approximate cut to average 1.5' | |
| | Construct Distribution Canal, SPCOL Canal, Spreader Ditches, Collector Ditches | Excavated Type 1 to place and compact in Cell Levees; Excavated Type 2 to be wasted outside of STA but within project limits | Type 2 below elevation 16.0 |
| | Waste Excess Canal and Ditch Material | Waste Excess Type 1 material to property line and in Buffer | |
| | Construct Concrete box Culvert Inlets to STA's | Construct 3ea -48"x48" STA influent culverts through STA Levees with access platform and 48" SQ Motorized modulating sluice gate; 1 ea - Similar construction for STA Drain except with manual sluice gate. | 23 inlet culverts, 8 Drain culverts |

**Table 2**
**Estimating Assumptions and Clarifications**
(Continued)

| Worksheet | Facilities | Scope of Work | Comments |
|---|---|---|---|
| | Construct Concrete Adjustable weirs for STA outlets | 20'lg, approx. 8' wide at crest, slope concrete carried to bottom of collector ditch or SPCOL Canal, adjustable alum weir at top | Total of 15 all STA's |
| | Construct interior Drainage Ditches | Excavate for new ditches on either side of the existing FPL easement to run South from the Northern project limit to the E-W SPCOL canal located South of Cell 2. | |
| | Construct FPL and District Access Structures 1-10 | Four single lane bridge, and six box culverts | See STA Access Canal Crossings Spread sheet for details |
| | Construct new Eastern Drainage Canal | Excavate new canal from Easement 1 North of Citrus Blvd North to Bar-B-Q Ranch, west to cell 3 and North to project limits | Abandon existing ditch in place |
| | Construct gated outlet structure at easement #3 | Design to be based on District Standard design | |
| | Sodding | Sod all levees and ditches from the waterline to waterline or 10' beyond top edge whichever is appropriate | |
| | Site Restoration | Grass all disturbed areas within project limits that are otherwise not designed for a different treatment | |
| | Electrical | Furnish and install either an overhead electrical distribution system per the preliminary design, whichever is less expensive with dropdown transformers at the inlet and outlets of each cell, power for electric gate operators and instrumentation at the inlet, electric gate operator and instrumentation at the outlet | |

**Table 2**
**Estimating Assumptions and Clarifications**
(Continued)

| Worksheet | Facilities | Scope of Work | Comments |
|---|---|---|---|
| | SCADA/Instrumentation | STA inlet and outlet levels, remote operation of electric gates with gate position indicators to be provided with radio transmission to and from the Reservoir PS. | SCADA wiring at each inlet and outlet area in node price |
| | | | |
| **Easement Construction** | | | |
| **Easement #5** | Easement #5 - Construct temporary bypass road | 32' wide paved road with guardrail both sides and taper into Citrus Blvd | Assume irrigation ditch can be filled in |
| | Easement #5 - Build New State Hwy Bridge for Citrus Blvd | 3446 Sf bridge, CL IV concrete substructure, CL II concrete superstructure, prestressed concrete piles | Bridge protection to be PZ 27 sheet piling left in place |
| | Easement #5 - Regrade and pave Citrus Blvd 400' either side of new bridge | | |
| **Easement #3** | Easement #3 - Upgrade existing canal | Clear, grub and regrade existing canal, place Rip Rap up to elev.. 18.0' from 100' north of existing bridge to outlet weir structure at C 44 | Existing Weir at C 44 to be utilized as is |
| **Easement #1** | Easement #1 - Construct temporary bypass road | | Assume irrigation ditch can be filled in |
| | Easement #1 - Demo Existing Pipe under Citrus Blvd Culvert | | |

**Table 2**
**Estimating Assumptions and Clarifications**
(Continued)

| Worksheet | Facilities | Scope of Work | Comments |
|---|---|---|---|
| | Easement #1 - Demo Existing PS | | |
| | Easement #1 - Construct new box culvert under Citrus Blvd | Twin - 6'x`0" box culverts, 175 LF long, wing walls and rip rap slope protection | 2' SOG, 1' walls, 2' Top Slab |
| | Easement #1 - Regrade and pave Citrus Blvd 400' either side of new culvert | | |
| | Easement #1 - Create new canal cross section | Bottom elev. 14.0', bottom width 20', side slopes 3 to 1, existing grade elev. 35.0' | |
| | Easement #1 - Construct Weir outlet at C44 | Design based on Okeechobee Flood Control design, 30' weir length | |
| | | | |
| **Reservoir Pump Station** | Division 2 | Sheeting, tremie slab with ground anchors, excavate, Stone UNSOG, Backfill, Rip Rap | |
| | Division 3 | Inlet structure, FIS area, operation floor, and PS discharge structure in reservoir. | In accordance with Preliminary design drawings |
| | Building above Motor Slab, Division 4, 5,6,7,8,9,10,12, | $/SF | Unit price will include building HVAC, Plumbing, Electrical |
| | Interior office space at operating floor level | Price out with RS Means Unit prices for block, SIP formed concrete, etc | |
| | Division 11 Engineered Equipment | Pumps and Electric Drivers; housekeeping Generator, Vacuum Priming System, Air Compressors, Dupron trash screen and screen rake, dewatering needle beam assembly. | Pumps, Drivers and Screen Pricing Updated per vendor quote backup information |

**Table 2**
**Estimating Assumptions and Clarifications**
(Continued)

| Worksheet | Facilities | Scope of Work | Comments |
|---|---|---|---|
| | Division 13 | Pump Station I&C and SCADA | Percentage |
| | Division 14 | Overhead Bridge Crane | 25 Tons |
| | Division 15 | Piping for Engineered System, potable water system, sanitary system, PS discharge into the reservoir | Pump station discharge piping is 72" ACIPCO SpiralWeld steel pipe, CL, coated and taped. The pipe is estimated as buried in the embankment. |
| | Division 16 | MCC Vendor pricing, All other electric based on percentage of other construction cost | |
| | | | |
| **Test Temporary TIWCD Reconfiguration** | | | |
| **Site 1** | Construct temporary access road to site at existing spillway Allapatah #1 | Fill all eroded areas with available material to match existing, regrade road, provide silt fence | |
| | Install new rented pumps to pull water from C44 to existing canal D | Hyd. submersible pumps, 2 ea 18,000 gpm@15',24" piping, Hyd. diesel unit, 2 ea, hyd hose, 24" Chk and SO valve, Manatee protection | Pumps to be placed on existing concrete slab and wall in C44 |
| | 2 ea stone pads for two Hyd drive units and temporary fuel oil storage tank, 500 gallons | 18" stone pads, 12'x18'x18", Fuel oil pad, 18'x20'x18" | |
| | Install staff gauge in canal D and security fence | Elevations based on NAD83 | Specification 02781-2, fence as shown on plans |

**Table 2**
**Estimating Assumptions and Clarifications**
(Continued)

| Worksheet | Facilities | Scope of Work | Comments |
|---|---|---|---|
| **Site 5** | Install single rented pump unit to pump water from Running W to TIWCD main irrigation Canal | Silt fence, 12000 gpm @ 10', hyd diesel drive unit, 24' discharge piping, valves | |
| | 2 ea SOG for two Hyd drive units and temporary fuel oil dbl wall storage tank, ? gallons | Drive pad, 12'x12'x18", Fuel oil pad, 12'x12'x18" | |
| | Temporary floating turbidity barrier | | |
| **Site 2** | Install 2 new permanent pumps, piping, and drive units to pump water from canal D to existing irrigation system | Hyd submersible pumps, 2 ea 18,000 gpm@20',24" piping, Hyd diesel unit, 2 ea, hyd hose, 24" Chk, flap valves and SO valve | |
| | 2 ea stone pads for two Hyd drive units and temporary fuel oil dbl wall storage tank, ? gallons | stone pad, 12'x12'x18", Fuel oil pad, 12'x12'x18" | |
| | Install temporary floating turbidity barriers in canal D and irrigation canal 1, rip-rap protection, silt fence, chain link fence | See project specifications | |

**Table 2**
**Estimating Assumptions and Clarifications**
(Continued)

| Worksheet | Facilities | Scope of Work | Comments |
|---|---|---|---|
| | **Convert Running W ditch to TIWCD Canal** | Construct earthen ditch block, sod and temporary floating turbidity barriers | |
| | Install Water control Structure at Minute Maid and Canal D-1 | Per Plan documents | |
| | Test interim configuration | Man-hours to check out new pumps and stop log control structure | One Month Test |
| | | | |

# Opinion of Probable Construction Cost
## SUMMARY



| | CSI Specification Breakdown | Reservoir Construction | Reservoir Temp. Construction | Reservoir Discharge Structure | Reservoir Intake Canal | Reservoir TIWCD Permanent | STA Construction | Easement Construction | Reservoir Pump Station | Test TIWCD Temp. Reconfig | Project Construction Cost Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Direct Cost by Division | Division 1 | $22,524 | $6,585,082 | $51,801 | $433,408 | $38,652 | $254,386 | $64,468 | $197,474 | $43,115 | $7,690,910 |
| | Division 2 | $64,150,260 | $0 | $32,047 | $15,286,596 | $1,663,224 | $37,789,853 | $3,159,582 | $1,845,455 | $556,800 | $124,483,817 |
| | Division 3 | $0 | $0 | $701,951 | $0 | $61,567 | $4,129,197 | $934,578 | $2,024,593 | $0 | $7,851,886 |
| | Division 4 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $11,948 | $0 | $11,948 |
| | Division 5 and 6 | $0 | $0 | $31,947 | $0 | $60,118 | $238,031 | $0 | $410,858 | $0 | $740,954 |
| | Division 7 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $55,998 | $0 | $55,998 |
| | Division 8 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $31,552 | $0 | $31,552 |
| | Division 9 | $0 | $0 | $5,500 | $0 | $5,525 | $0 | $10,500 | $193,480 | $0 | $215,005 |
| | Division 10 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $27,500 | $0 | $27,500 |
| | Division 11 | $0 | $0 | $198,800 | $0 | $149,050 | $1,294,780 | $0 | $6,916,961 | $0 | $8,559,591 |
| | Division 12 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $48,000 | $0 | $48,000 |
| | Division 13 | $587,200 | $0 | $0 | $0 | $41,250 | $1,620,800 | $0 | $708,800 | $0 | $2,958,050 |
| | Division 14 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $95,499 | $0 | $95,499 |
| | Division 15 | $0 | $0 | $0 | $0 | $128,480 | $0 | $0 | $2,928,332 | $0 | $3,056,812 |
| | Division 16 | $0 | $0 | $66,599 | $500,000 | $0 | $1,333,962 | $0 | $2,722,703 | $0 | $4,623,264 |
| | | | | | | | | | | | |
| Current Direct Cost - Sub -Total | | $64,759,984 | $6,585,082 | $1,088,645 | $16,220,004 | $2,147,866 | $46,661,009 | $4,169,128 | $18,219,153 | $599,915 | $160,450,786 |
| Contractor's Field Overhead and Mobilization @ 9% except Reservoir Pump Station @ 6.0% | | $5,828,399 | $592,657 | $97,978 | $1,459,800 | $193,308 | $4,199,491 | $375,222 | $1,093,149 | $53,992 | $13,893,996 |
| Sales Tax Estimate @ 6% | | $2,713,289 | $332,538 | $7,328 | $587,397 | $94,442 | $1,426,333 | $101,370 | $673,802 | $9,206 | $5,945,705 |
| **Current Field Construction Cost - SubTotal** | | **$73,301,672** | **$7,510,277** | **$1,193,951** | **$18,267,201** | **$2,435,616** | **$52,286,833** | **$4,645,720** | **$19,986,104** | **$663,113** | **$180,290,487** |
| Contractor's Fee (Home Office Ovhd and Profit) @15%except Reservoir Pump Station @ 12% | | $10,995,251 | $1,126,542 | $179,093 | $2,740,080 | $365,342 | $7,843,025 | $696,858 | $2,398,332 | $165,778 | $26,510,301 |
| Contractor Bonds and Insurance @ 1.5% | | $1,264,454 | $129,552 | $20,596 | $315,109 | $42,014 | $901,948 | $80,139 | $335,767 | $12,433 | $3,102,012 |
| Undefined Scope of Work Estimated Cost @ 15% | | $12,834,207 | $1,314,956 | $209,046 | $3,198,359 | $426,446 | $9,154,771 | $813,408 | $3,408,030 | $84,132 | $31,443,355 |
| **Current Construction Estimate Total** | | **$98,395,584** | **$10,081,327** | **$1,602,686** | **$24,520,749** | **$3,269,418** | **$70,186,577** | **$6,236,125** | **$26,128,233** | **$925,456** | **$241,346,155** |
| MCIP Cost Allowance @ 4 % | | $3,935,823 | $403,253 | $64,107 | $980,830 | $130,777 | $2,807,463 | $249,445 | $1,045,129 | $37,018 | $9,653,845 |
| **OPCC Estimate Budget** | | **$102,331,407** | **$10,484,580** | **$1,666,793** | **$25,501,579** | **$3,400,195** | **$72,994,040** | **$6,485,570** | **$27,173,362** | **$962,474** | **$251,000,000** |

# Opinion of Probable Construction Cost
## SUMMARY



| | CSI Specification Breakdown | Reservoir Construction | STA Construction | Easement Construction | Reservoir Pump Station | Test TIWCD Temp. Reconfig | Project Construction Cost Total |
|---|---|---|---|---|---|---|---|
| Direct Cost by Division | Division 1 | $7,131,467 | $254,386 | $64,468 | $197,474 | $43,115 | $7,690,910 |
| | Division 2 | $81,132,127 | $37,789,853 | $3,159,582 | $1,845,455 | $556,800 | $124,483,817 |
| | Division 3 | $763,518 | $4,129,197 | $934,578 | $2,024,593 | $0 | $7,851,886 |
| | Division 4 | $0 | $0 | $0 | $11,948 | $0 | $11,948 |
| | Division 5 and 6 | $92,065 | $238,031 | $0 | $410,858 | $0 | $740,954 |
| | Division 7 | $0 | $0 | $0 | $55,998 | $0 | $55,998 |
| | Division 8 | $0 | $0 | $0 | $31,552 | $0 | $31,552 |
| | Division 9 | $11,025 | $0 | $10,500 | $193,480 | $0 | $215,005 |
| | Division 10 | $0 | $0 | $0 | $27,500 | $0 | $27,500 |
| | Division 11 | $347,850 | $1,294,780 | $0 | $6,916,961 | $0 | $8,559,591 |
| | Division 12 | $0 | $0 | $0 | $48,000 | $0 | $48,000 |
| | Division 13 | $628,450 | $1,620,800 | $0 | $708,800 | $0 | $2,958,050 |
| | Division 14 | $0 | $0 | $0 | $95,499 | $0 | $95,499 |
| | Division 15 | $128,480 | $0 | $0 | $2,928,332 | $0 | $3,056,812 |
| | Division 16 | $566,599 | $1,333,962 | $0 | $2,722,703 | $0 | $4,623,264 |
| | | | | | | | |
| Current Direct Cost - Sub -Total | | $90,801,581 | $46,661,009 | $4,169,128 | $18,219,153 | $599,915 | $160,450,786 |
| Contractor's Field Overhead and Mobilization @ 9% except Reservoir Pump Station @ 6.0% | | $8,172,142 | $4,199,491 | $375,222 | $1,093,149 | $53,992 | $13,893,996 |
| Sales Tax Estimate @ 6% | | $3,734,994 | $1,426,333 | $101,370 | $673,802 | $9,206 | $5,945,705 |
| **Current Field Construction Cost - SubTotal** | | **$102,708,717** | **$52,286,833** | **$4,645,720** | **$19,986,104** | **$663,113** | **$180,290,487** |
| Contractor's Fee (Home Office Ovhd and Profit) @15%except Reservoir Pump Station @ 12% | | $15,406,308 | $7,843,025 | $696,858 | $2,398,332 | $165,778 | $26,510,301 |
| Contractor Bonds and Insurance @ 1.5% | | $1,771,725 | $901,948 | $80,139 | $335,767 | $12,433 | $3,102,012 |
| Undefined Scope of Work Estimated Cost @ 15% | | $17,983,014 | $9,154,771 | $813,408 | $3,408,030 | $84,132 | $31,443,355 |
| **Current Construction Estimate Total** | | **$137,869,764** | **$70,186,577** | **$6,236,125** | **$26,128,233** | **$925,456** | **$241,346,155** |
| MCIP Cost Allowance @ 4 % | | $5,514,790 | $2,807,463 | $249,445 | $1,045,129 | $37,018 | $9,653,845 |
| **OPCC Estimate Budget** | | **$143,384,554** | **$72,994,040** | **$6,485,570** | **$27,173,362** | **$962,474** | **$251,000,000** |

# 2.0 CONSTRUCTION SCHEDULE

## 2.1 Introduction

The C-44 Reservoir/STA Project will be constructed on approximately 12,000 acres bounded by Citrus Boulevard and the C-44 Canal to the south, agricultural properties to the west and east, the Allapattah property to the north, and agricultural and undeveloped property to the north-east. The total project will include the following primary elements:

- Construction of a Reservoir
- Construction of a Stormwater Treatment Area (STA) divided into seven cells
- Construction of Seepage and Distribution canals
- Construction of an Intake Canal and Paved Entrance Road
- Construction of a Reservoir Pump Station that will lift water from the Intake Canal into the Reservoir
- Reconfiguration of Troup Indiantown Water Control District (TIWCD) facilities:
    - Construction of an interim irrigation configuration including a temporary pump to ensure that the necessary agricultural needs of the TIWCD can continue to be met during construction of the C-44 Project
    - Construction of a new permanent pump station
- Modifications within existing easements, including a bridge over the Intake Canal, new box culvert(s) under Citrus Boulevard, and other improvements to facilitate operation of the C-44 Project.
- Permanent water plant seeding of the STA cells

The construction schedule encompasses a 30-month timeframe (July 1 2007 to December 31, 2009).

**Detailed Schedule**

In overview, the C-44 Reservoir/STA Project Schedule can best be shown by listing the following critical milestones that will carry the Project from the start of Preliminary Design through construction completion:

- Submit Reservoir/STA1502 Permit Application 07/10/06
- Temporary Reconfiguration of TIWCD Final Design 07/31/06
- Advertise Bid for TIWCD Test Reconfiguration 08/11/06
- Notice to Proceed (NTP) Intermediate Design 08/28/06
- Reservoir/STA Preliminary Design Presented to Governing Board 09/13/06
- Temporary Reconfiguration of TIWCD Contract 10/11/06

- Reservoir/STA Intermediate Design Submittal 10/19/06
- NTP Construction – Temporary Reconfiguration of TIWCD 10/17/06
- Reservoir/STA Pre-Final Design Plans and Specifications 1/22/06
- Reservoir/STA Draft Bid Packages 03/15/07
- Reservoir/STA Final Bid Packages 03/22/07
- Reservoir/STA Project Bid Period 04/06-05/15/07
- Reservoir/STA Project Contracts Awarded 06/13/07
- NTP Construction – C-44 Reservoir/STA Project 06/25/07
- Construction of Reservoir/STA Project Complete 12/31/09

A C-44 Project Summary Schedule is provided in Volume 1 and a complete detailed Critical Path Method (CPM) schedule starting with the Notice to Proceed for Preliminary Design through construction and three years of operations is included in this volume. The Project Schedule and Opinion of Probable Construction Costs (OPCC) have been developed assuming the Project will be constructed with four construction contracts. The scope of work for each would be:

- Contract 1 Reservoir, Intake and Outlet Canals, Entrance Road, Temporary Reconfiguration of TIWCD and Permanent TIWCD Pump Station
- Contract 2 Stormwater Treatment Area
- Contract 3 Reservoir Pump Station, including Pump Station Discharge Structure
- Contract 4 Citrus Boulevard Improvements

A detailed description of the Project elements for each contract is provided in Section 1.

**Construction Sequencing**

The C-44 Project may involve four contractors working simultaneously to complete the entire scope of work. Construction of the Temporary Reconfiguration of TIWCD facilities is intended to be a separate construction contract scheduled for completion before issuance of the NTP for construction of the C-44 Reservoir/STA Project.

As noted, the Construction Schedule and OPCC were developed contemplating four construction contracts based on the following considerations: 1) an evaluation of the forecasted bidding climate at the Projected bid dates, 2) the special skills required for each type of construction, and 3) the optimum number of contracts to ensure project completion on time and on budget. Each separate Contractor will be required to develop and update on a monthly basis, a detailed CPM schedule for their specific scope of work. These separate schedules will be integrated into an overall project CPM schedule by the Project Construction Manager, having responsibilities for contract

coordination and schedule maintenance. These schedules will be developed by each contractor using constraints that will be specified in the final construction documents to ensure accomplishment of project objectives. Construction constraints identified at this time are presented in the following discussion of the major elements making up the four contracts for the C-44 Project.

## 2.2 Reservoir, Intake Canal, Entrance Road, and TIWCD Permanent Pump Station

The scope of work in this contract would include all reservoir embankment construction, soil-cement mixing and placement, and construction of the maintenance road, west seepage canal, miscellaneous ditches around the reservoir embankment, entrance road, intake canal and the permanent TIWCD Pump Station.

It is anticipated that the majority of the material for the embankment will come from the interior of the Reservoir, northern section of the intake canal, and surrounding Reservoir seepage canals. The Contractor's borrow in the Reservoir interior will be limited to a depth of 4 feet to maintain the integrity of the silty to clayey sand surficial confining layers Unit A & B (designed as Soil Type 1). The on-site shelly sand material, or Unit C (designed as Soil Type 2), is suitable with limitations as embankment fill material. Borrow will in the Reservoir interior be limited to areas at least 200 feet from the embankment toe and no more than 4 feet deep. The final width of the borrow area will of course depend on the balance of suitable material available for the seepage/collection canal and intake canal that must be supplemented from the borrow area within the Reservoir.

Material for the soil-cement required for the internal reservoir slope protection can come from the same area as the embankment borrow or from any portion of the 1.9 million cubic yards of material excavated from the intake canal that is not utilized to build the entrance road. All Soil Type 1 and 2 materials are suitable for soil-cement aggregate. The intake canal material may be desirable because of the high quantity of shelly sand to be excavated, but the need to stockpile these soils to allow dewatering and the haul distance to the pugmill locations may limit its use for this purpose. In addition, the shelly sand may also be used in the chimney drain, which may be a higher priority use to avoid the cost of outside borrow for this use.

While not a significant impediment to efficient construction of the Reservoir, the Florida Power & Light (FPL) easement along the western property boundary must always be available for access by FPL maintenance crews and left in a condition approved by FPL; this will be a factor in the Contractor's overall construction sequencing. This easement consists of a 200-foot distance from the western section line.

The new permanent 36,000 gpm TIWCD Pump Station will utilize hydraulic irrigation pumps that will have been rebuilt following their use in the temporary irrigation reconfiguration that will be in place during project construction. Water from this new pump station will be lifted from the intake canal into a new irrigation ditch running east-west south of the Reservoir. Construction of the new pump station will not require

supplemental dewatering since the limited concrete construction can be built with precast units that can be placed in wet conditions when necessary.

## 2.3 Storm Water Treatment Area

Construction of the approximately 6,300 acres of the STA in seven separate cells involves earthmoving challenges similar to the Reservoir construction. This includes balancing haul distances, minimizing double handling of material, disposal of excess materials, and coordination with FPL to ensure access to their easements. The STA embankments will be approximately 7 feet above existing grade and therefore, will not require soil-cement protection. Control of water flow will be provided through the construction of relatively simply gated culverts and concrete weirs. Excavation of the distribution and collection canals, which carry water to and away from the STA cells, will provide the material necessary for the STA cell embankments. The interior of the STA cells and the Project buffer zone will provide adequate area to waste the relatively small amount of excess material anticipated in the STA embankment construction. Although not technically difficult, work within the STA cells will require significant equipment and operator understanding to meet the Project schedule; additionally the work involved does comprise a significant element in the OPCC. One challenge of the STA construction will involve the gated outlet and weir structure to be built in an expanded Easement 3 canal. However challenging, this is a relatively small structure, which should be effectively handled by many smaller civil-structural-type construction firms.

## 2.4 Reservoir Pump Station

The Reservoir Pump Station is a third major element of the C-44 Reservoir/STA Project. The Pump Station, located in the southeast corner of the Reservoir embankment with 1,100 cfs of pumping capacity, will utilize four water cooled electrically driven pumps. It will be built at the end of the intake canal to transfer water from C-44 Canal to the Reservoir when water is available. Construction of this facility will include furnishing and installing four outlet pipes, one for each pump, made from 72” SpiralWeld or similar pipe material placed within the embankment and terminating at an energy dissipating discharge structure inside the reservoir, at the toe of the embankment. The design will incorporate four pumps and drivers with shaped intakes with 300 RPM water cooled electric drivers.

Analysis during this phase concluded that the Duperon® continuous raking system and trash screens was the best alternative for this project. Based on delivery schedules now being provided by equipment vendors, timely delivery of this equipment should not be an issue. However, as the design process continues, contact with equipment vendors will be maintained to ensure that this remains the case. In addition, the District may want to consider owner purchase of these and other large dollar equipment items to save the applicable sales tax.

A challenging construction issue will involve consideration of whether to dewater the shelly sand material during construction of the pump intake area or to use a sheet pile cofferdam since the pump station subgrade will be at Elevation -4.0. The sheet pile option would include a concrete tremie slab and grouted ground anchors. Coordination

of this work so as to not impact construction of the embankment and intake canal without increasing construction cost of the Pump Station will be an important construction constraint.

Specific reasons for planning a separate construction contract for the Pump Station include: 1) the construction experience and workforce required for construction of the pump station is significantly different than that required for the Reservoir or STA construction, 2) the high probability that significantly more qualified contractors can be identified for this work than for the Reservoir construction, 3) most qualified contractors for this scope of work will be more likely to propose if directly contracted with the District rather than as a subcontractor to a large earthmoving contractor and, 4) the increased competition and focus will help ensure that these facilities will be completed on time and on budget.

## 2.5 Modifications within Existing Easements

There are five easements that connect the Project site to the C-44 Canal. Three of the five easements, 1, 3, 5, will be modified for the Project.

- **Easement No. 1**: This easement is located on the east side of the property and currently includes an irrigation canal with a pump station operated by the former landowners and a box culvert. The pump station will be removed and the canal will be improved for use as a discharge for irrigation water from the new eastern irrigation canal. The hydraulic capacity of the culvert under Citrus Boulevard must be increased and the invert lowered to meet the design hydraulics. A discharge weir will be constructed at the interface with C-44 and this discharge canal.
- **Easement No. 3**: This easement contains a canal and will handle all flows from the STA collection and seepage canals. While the existing bridge for Citrus Blvd. over the canal is adequate, the entire canal profile must be changed and rip-rap armament provided from 300 feet north of Citrus Blvd to the existing weir at C-44. As previously mentioned, a gated outlet and weir structure will be constructed in this easement under the STA construction contract.
- **Easement No. 5**: The easement modification will include construction of a new bridge to span the new intake canal, requiring a temporary bypass anticipated to be built north of Citrus Blvd. The bridge abutments will be protected by stay in place sheet piling with wingwalls extending north and south of the bridge. It is anticipated that this work and the excavation of this small portion of the intake canal will be done by the easement modification contractor. All other work in the intake canal, including demolition of the existing canal will be performed by the Reservoir contractor.

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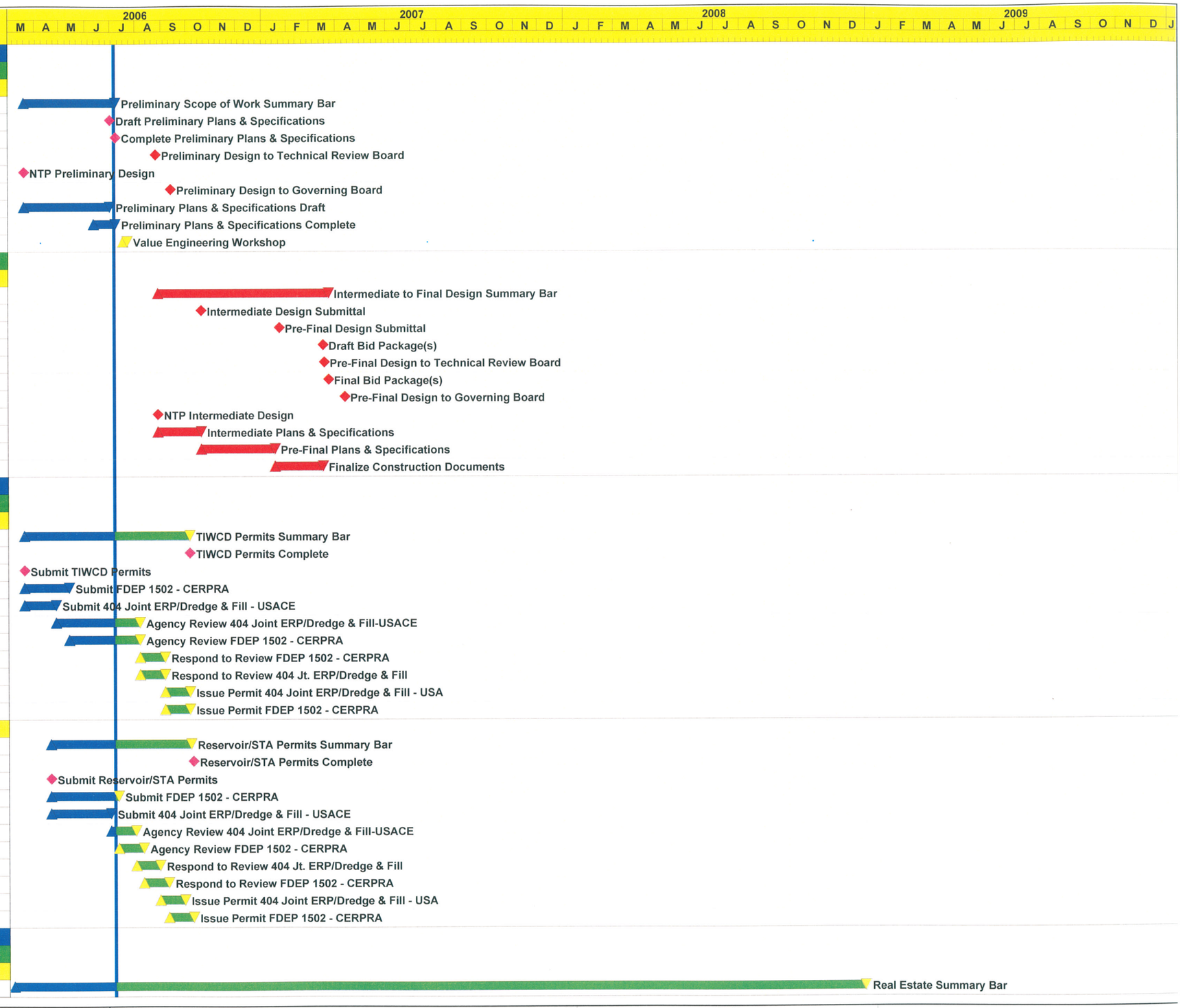
| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish |
|---|---|---|---|---|
| **DESIGN** | | | | |
| Preliminary Design Reservoir/STA's/TIWCD | | | | |
| 0100 | Preliminary Scope of Work Summary Bar | 110* | 20MAR06A | 07JUL06A |
| 2960 | Draft Preliminary Plans & Specifications | 0 | | 30JUN06A |
| 2940 | Complete Preliminary Plans & Specifications | 0 | | 07JUL06A |
| 2970 | Preliminary Design to Technical Review Board | 0 | | 24AUG06* |
| 0160 | NTP Preliminary Design | 0 | 20MAR06A | |
| 2990 | Preliminary Design to Governing Board | 0 | 13SEP06* | |
| 2980 | Preliminary Plans & Specifications Draft | 91 | 20MAR06A | 30JUN06A |
| 0180 | Preliminary Plans & Specifications Complete | 57 | 12JUN06A | 07JUL06A |
| 2950 | Value Engineering Workshop | 5 | 17JUL06* | 21JUL06 |
| Final Design Reservoir/STA's/TIWCD Final Config. | | | | |
| 0240 | Intermediate to Final Design Summary Bar | 207* | 28AUG06 | 22MAR07 |
| 3030 | Intermediate Design Submittal | 0 | | 19OCT06* |
| 3020 | Pre-Final Design Submittal | 0 | | 22JAN07* |
| 0390 | Draft Bid Package(s) | 0 | | 15MAR07* |
| 3040 | Pre-Final Design to Technical Review Board | 0 | | 16MAR07* |
| 0410 | Final Bid Package(s) | 0 | | 22MAR07* |
| 3050 | Pre-Final Design to Governing Board | 0 | | 11APR07* |
| 0320 | NTP Intermediate Design | 0 | 28AUG06* | |
| 0340 | Intermediate Plans & Specifications | 53 | 28AUG06 | 19OCT06 |
| 0360 | Pre-Final Plans & Specifications | 90 | 20OCT06 | 17JAN07 |
| 0380 | Finalize Construction Documents | 57 | 18JAN07 | 15MAR07 |
| **PERMITTING** | | | | |
| TIWCD Permits | | | | |
| 0400 | TIWCD Permits Summary Bar | 199* | 20MAR06A | 04OCT06 |
| 3160 | TIWCD Permits Complete | 0 | | 04OCT06 |
| 0860 | Submit TIWCD Permits | 0 | 20MAR06A | |
| 0420 | Submit FDEP 1502 - CERPRA | 60 | 20MAR06A | 11MAY06A |
| 0540 | Submit 404 Joint ERP/Dredge & Fill - USACE | 60 | 20MAR06A | 26APR06A |
| 0560 | Agency Review 404 Joint ERP/Dredge & | 30 | 27APR06A | 05AUG06 |
| 0440 | Agency Review FDEP 1502 - CERPRA | 30 | 12MAY06A | 05AUG06 |
| 0460 | Respond to Review FDEP 1502 - CERPRA | 30 | 06AUG06 | 04SEP06 |
| 0580 | Respond to Review 404 Jt. ERP/Dredge & Fill | 30 | 06AUG06 | 04SEP06 |
| 0480 | Issue Permit 404 Joint ERP/Dredge & Fill - USA | 30 | 05SEP06 | 04OCT06 |
| 0500 | Issue Permit FDEP 1502 - CERPRA | 30 | 05SEP06 | 04OCT06 |
| Reservoir/STA Permits | | | | |
| 3230 | Reservoir/STA Permits Summary Bar | 122* | 20APR06A | 06OCT06 |
| 3220 | Reservoir/STA Permits Complete | 0 | | 08OCT06 |
| 3180 | Submit Reservoir/STA Permits | 0 | 20APR06A | |
| 0620 | Submit FDEP 1502 - CERPRA | 60 | 20APR06A | 10JUL06 |
| 0640 | Submit 404 Joint ERP/Dredge & Fill - USACE | 60 | 20APR06A | 30JUN06A |
| 0680 | Agency Review 404 Joint ERP/Dredge & | 30 | 01JUL06A | 30JUL06 |
| 0660 | Agency Review FDEP 1502 - CERPRA | 30 | 11JUL06 | 09AUG06 |
| 0720 | Respond to Review 404 Jt. ERP/Dredge & Fill | 30 | 31JUL06 | 29AUG06 |
| 0700 | Respond to Review FDEP 1502 - CERPRA | 30 | 10AUG06 | 08SEP06 |
| 0760 | Issue Permit 404 Joint ERP/Dredge & Fill - USA | 30 | 30AUG06 | 28SEP06 |
| 0780 | Issue Permit FDEP 1502 - CERPRA | 30 | 09SEP06 | 08OCT06 |
| **REAL ESTATE** | | | | |
| Land Aquisitions | | | | |
| 0900 | Real Estate Summary Bar | 1,030* | 06MAR06A | 29DEC08 |




Early Bar
Progress Bar
Critical Activity

PRE2

Sheet 1 of 7

C-44 Reservoir & STA's

Preliminary Design
Detail Schedule

07JUL06

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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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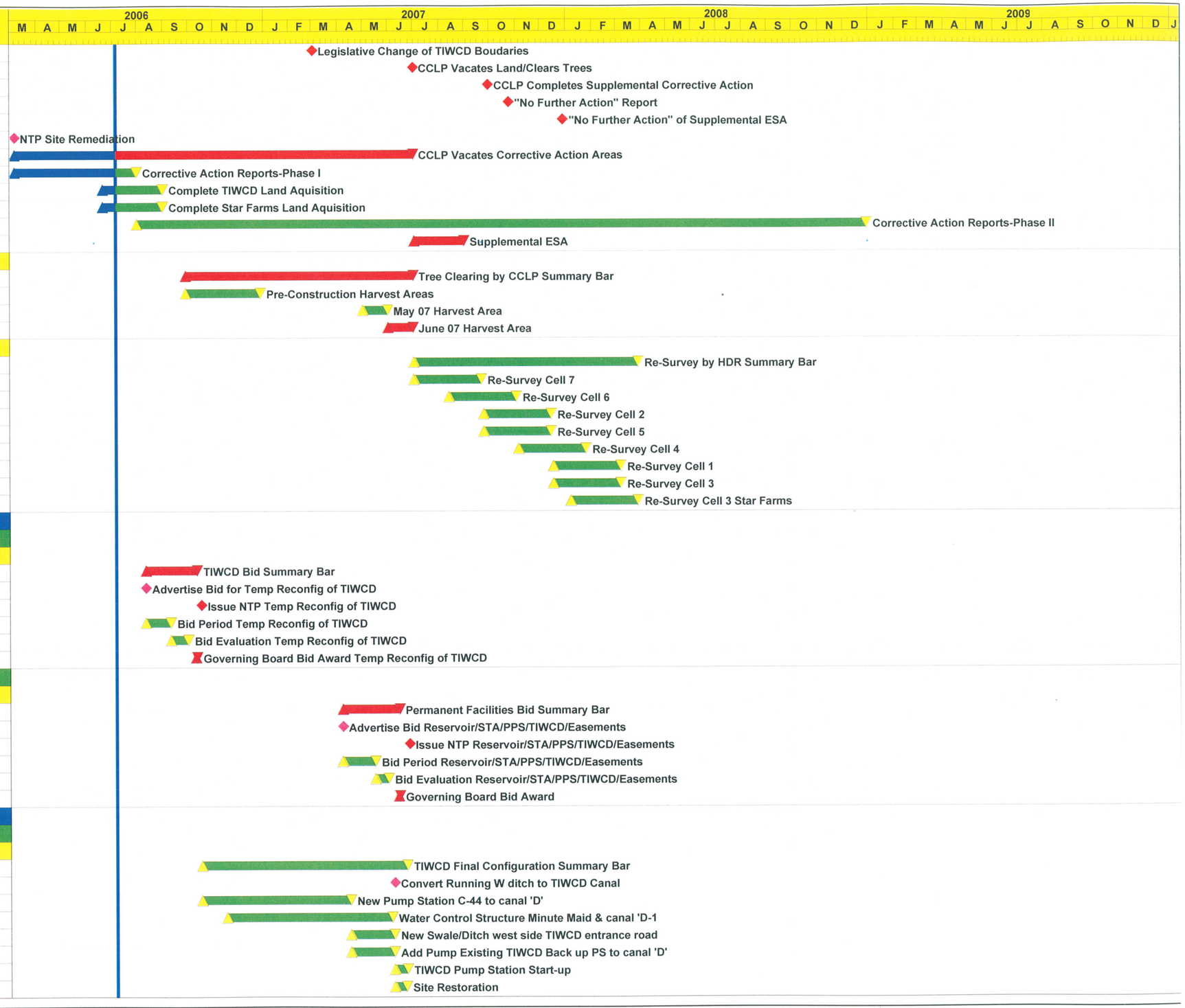
| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish |
|---|---|---|---|---|
| 1060 | Legislative Change of TIWCD Boudaries | 0 | | 01MAR07* |
| 1100 | CCLP Vacates Land/Clears Trees | 0 | | 30JUN07 |
| 0980 | CCLP Completes Supplemental Corrective Action | 0 | | 28SEP07* |
| 0960 | "No Further Action" Report | 0 | | 24OCT07* |
| 1020 | "No Further Action" of Supplemental ESA | 0 | | 28DEC07* |
| 0920 | NTP Site Remediation | 0 | 06MAR06A | |
| 1080 | CCLP Vacates Corrective Action Areas | 359 | 06MAR06A | 30JUN07 |
| 0940 | Corrective Action Reports-Phase I | 60 | 06MAR06A | 31JUL06 |
| 0880 | Complete TIWCD Land Aquisition | 119 | 21JUN06A | 31AUG06 |
| 0890 | Complete Star Farms Land Aquisition | 119 | 21JUN06A | 31AUG06 |
| 0950 | Corrective Action Reports-Phase II | 800 | 01AUG06 | 29DEC08 |
| 1000 | Supplemental ESA | 55 | 02JUL07* | 31AUG07 |
| Tree Removal by CCLP | | | | |
| 1040 | Tree Clearing by CCLP Summary Bar | 275* | 29SEP06 | 30JUN07 |
| 1050 | Pre-Construction Harvest Areas | 90 | 29SEP06* | 27DEC06 |
| 1150 | May 07 Harvest Area | 30 | 01MAY07* | 30MAY07 |
| 1170 | June 07 Harvest Area | 30 | 01JUN07* | 30JUN07 |
| Re-Survey by HDR | | | | |
| C7-3340 | Re-Survey by HDR Summary Bar | 195* | 02JUL07 | 28MAR08 |
| C7-3330 | Re-Survey Cell 7 | 60 | 02JUL07 | 21SEP07 |
| C6-3330 | Re-Survey Cell 6 | 60 | 13AUG07 | 02NOV07 |
| C2-3330 | Re-Survey Cell 2 | 60 | 24SEP07 | 14DEC07 |
| C5-3330 | Re-Survey Cell 5 | 60 | 24SEP07 | 14DEC07 |
| C4-3330 | Re-Survey Cell 4 | 60 | 05NOV07 | 25JAN08 |
| 3330 | Re-Survey Cell 1 | 60 | 17DEC07 | 07MAR08 |
| C3-3330 | Re-Survey Cell 3 | 60 | 17DEC07 | 07MAR08 |
| NC3-3330 | Re-Survey Cell 3 Star Farms | 60 | 07JAN08 | 28MAR08 |
| BIDDING | | | | |
| Temporary Reconfiguration of TIWCD Contract | | | | |
| 4160 | TIWCD Bid Summary Bar | 62* | 11AUG06 | 11OCT06 |
| 2840 | Advertise Bid for Temp Reconfig of TIWCD | 0 | 11AUG06* | |
| 2920 | Issue NTP Temp Reconfig of TIWCD | 0 | 17OCT06* | |
| 2860 | Bid Period Temp Reconfig of TIWCD | 30 | 11AUG06 | 09SEP06 |
| 2880 | Bid Evaluation Temp Reconfig of TIWCD | 21 | 10SEP06 | 30SEP06 |
| 2900 | Governing Board Bid Award Temp Reconfig of | 1 | 11OCT06 | 11OCT06* |
| Reservoir/STA/PPS/TIWCD/Easements | | | | |
| 1220 | Permanent Facilities Bid Summary Bar | 69* | 06APR07 | 13JUN07 |
| 1140 | Advertise Bid | 0 | 06APR07* | |
| 2800 | Issue NTP | 0 | 25JUN07* | |
| 1160 | Bid Period | 40 | 06APR07 | 15MAY07 |
| 1180 | Bid Evaluation | 15 | 16MAY07 | 30MAY07 |
| 1200 | Governing Board Bid Award | 1 | 13JUN07 | 13JUN07* |
| CONSTRUCTION | | | | |
| Temporary Reconfiguration of TIWCD Contract | | | | |
| Temporary Reconfiguration | | | | |
| 3200 | TIWCD Final Configuration Summary Bar | 249* | 17OCT06 | 22JUN07 |
| 3800 | Convert Running W ditch to TIWCD Canal | 0 | | 06JUN07 |
| 3700 | New Pump Station C-44 to canal 'D' | 180 | 17OCT06 | 14APR07 |
| 3720 | Water Control Structure Minute Maid & canal 'D-1 | 200 | 16NOV06 | 03JUN07 |
| 3740 | New Swale/Ditch west side TIWCD entrance road | 53 | 15APR07 | 06JUN07 |
| 3840 | Add Pump Existing TIWCD Back up PS to canal | 53 | 15APR07 | 06JUN07 |
| 4000 | TIWCD Pump Station Start-up | 16 | 07JUN07 | 22JUN07 |
| 3680 | Site Restoration | 15 | 07JUN07 | 21JUN07 |

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Early Bar
Progress Bar
Critical Activity

PRE2

C-44 Reservoir & STA's

Preliminary Design
Detail Schedule

07JUL06



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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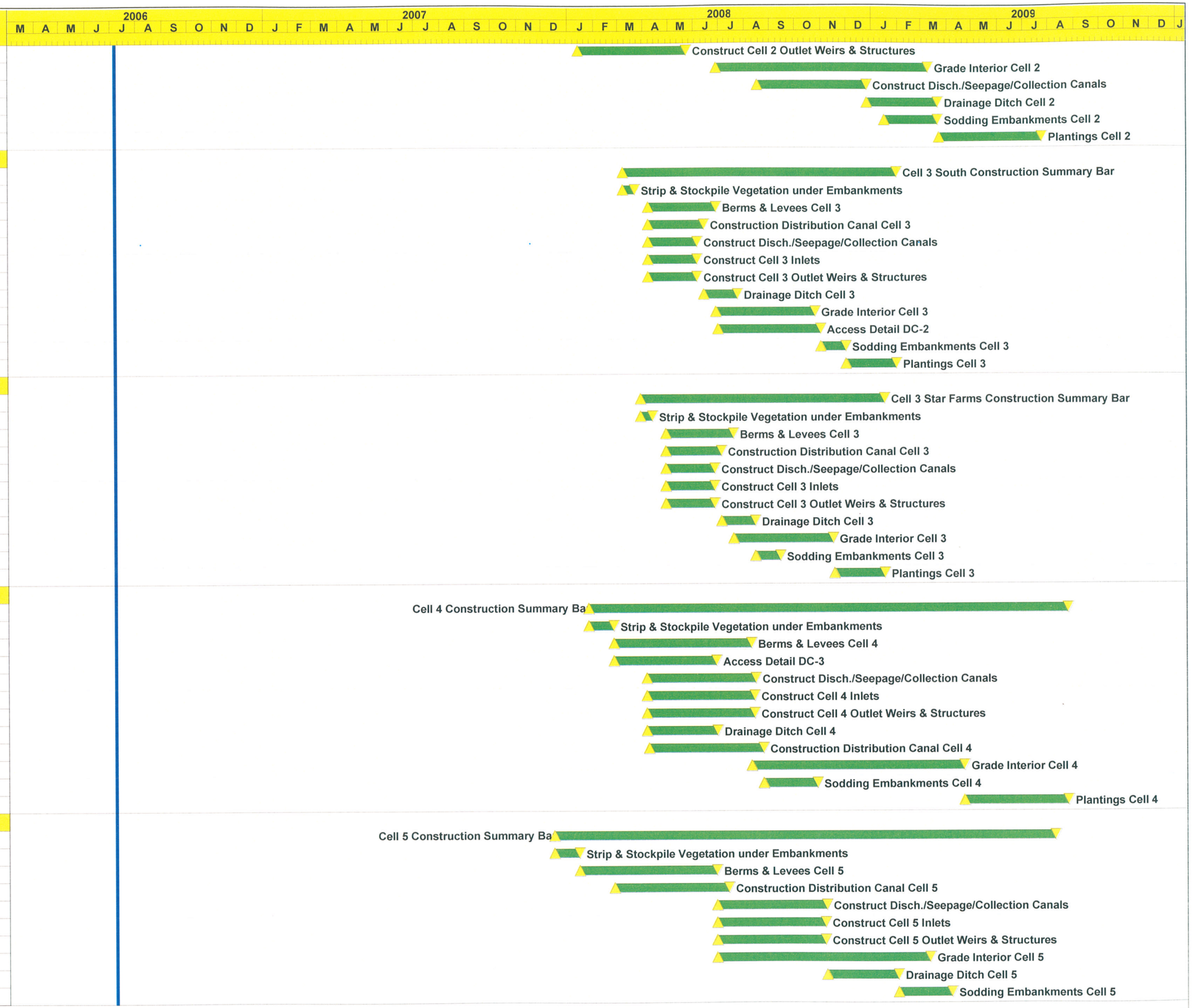
| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish |
|---|---|---|---|---|
| C2-3400 | Construct Cell 2 Outlet Weirs & Structures | 130 | 14JAN08 | 22MAY08 |
| C2-3340 | Grade Interior Cell 2 | 255 | 28JUN08 | 09MAR09 |
| C2-3360 | Construct Disch./Seepage/Collection Canals | 132 | 17AUG08 | 26DEC08 |
| C2-3440 | Drainage Ditch Cell 2 | 85 | 27DEC08 | 21MAR09 |
| C2-3480 | Sodding Embankments Cell 2 | 65 | 16JAN09 | 21MAR09 |
| C2-3410 | Plantings Cell 2 | 90 | 23MAR09 | 24JUL09 |
| Cell 3 Construction South | | | | |
| C3-3280 | Cell 3 South Construction Summary Bar | 329* | 08MAR08 | 30JAN09 |
| C3-3320 | Strip & Stockpile Vegetation under Embankments | 15 | 08MAR08 | 22MAR08 |
| C3-3390 | Berms & Levees Cell 3 | 60 | 07APR08 | 27JUN08 |
| C3-3370 | Construction Distribution Canal Cell 3 | 50 | 07APR08 | 13JUN08 |
| C3-3360 | Construct Disch./Seepage/Collection Canals | 60 | 07APR08 | 05JUN08 |
| C3-3380 | Construct Cell 3 Inlets | 60 | 07APR08 | 05JUN08 |
| C3-3400 | Construct Cell 3 Outlet Weirs & Structures | 60 | 07APR08 | 05JUN08 |
| C3-3440 | Drainage Ditch Cell 3 | 40 | 14JUN08 | 23JUL08 |
| C3-3340 | Grade Interior Cell 3 | 120 | 28JUN08 | 25OCT08 |
| C3-3380 | Access Detail DC-2 | 90 | 30JUN08 | 31OCT08 |
| C3-3480 | Sodding Embankments Cell 3 | 30 | 01NOV08 | 30NOV08 |
| C3-3410 | Plantings Cell 3 | 45 | 01DEC08 | 30JAN09 |
| Cell 3 Construction Star Farms | | | | |
| NC3-3280 | Cell 3 Star Farms Construction Summary Bar | 294* | 29MAR08 | 16JAN09 |
| NC3-3320 | Strip & Stockpile Vegetation under Embankments | 15 | 29MAR08 | 12APR08 |
| NC3-3390 | Berms & Levees Cell 3 | 60 | 28APR08 | 18JUL08 |
| NC3-3370 | Construction Distribution Canal Cell 3 | 50 | 28APR08 | 04JUL08 |
| NC3-3360 | Construct Disch./Seepage/Collection Canals | 60 | 28APR08 | 26JUN08 |
| NC3-3380 | Construct Cell 3 Inlets | 60 | 28APR08 | 26JUN08 |
| NC3-3400 | Construct Cell 3 Outlet Weirs & Structures | 60 | 28APR08 | 26JUN08 |
| NC3-3440 | Drainage Ditch Cell 3 | 40 | 05JUL08 | 13AUG08 |
| NC3-3340 | Grade Interior Cell 3 | 120 | 19JUL08 | 15NOV08 |
| NC3-3480 | Sodding Embankments Cell 3 | 30 | 14AUG08 | 12SEP08 |
| NC3-3410 | Plantings Cell 3 | 45 | 17NOV08 | 16JAN09 |
| Cell 4 Construction | | | | |
| C4-3280 | Cell 4 Construction Summary Bar | 577* | 26JAN08 | 24AUG09 |
| C4-3320 | Strip & Stockpile Vegetation under Embankments | 30 | 26JAN08 | 24FEB08 |
| C4-3390 | Berms & Levees Cell 4 | 120 | 25FEB08 | 08AUG08 |
| C4-3510 | Access Detail DC-3 | 90 | 25FEB08 | 27JUN08 |
| C4-3360 | Construct Disch./Seepage/Collection Canals | 132 | 05APR08 | 14AUG08 |
| C4-3380 | Construct Cell 4 Inlets | 130 | 05APR08 | 12AUG08 |
| C4-3400 | Construct Cell 4 Outlet Weirs & Structures | 130 | 05APR08 | 12AUG08 |
| C4-3440 | Drainage Ditch Cell 4 | 85 | 05APR08 | 28JUN08 |
| C4-3370 | Construction Distribution Canal Cell 4 | 100 | 07APR08 | 22AUG08 |
| C4-3340 | Grade Interior Cell 4 | 255 | 09AUG08 | 20APR09 |
| C4-3480 | Sodding Embankments Cell 4 | 65 | 23AUG08 | 26OCT08 |
| C4-3410 | Plantings Cell 4 | 90 | 21APR09 | 24AUG09 |
| Cell 5 Construction | | | | |
| C5-3280 | Cell 5 Construction Summary Bar | 602* | 15DEC07 | 07AUG09 |
| C5-3320 | Strip & Stockpile Vegetation under Embankments | 30 | 15DEC07 | 13JAN08 |
| C5-3390 | Berms & Levees Cell 5 | 120 | 14JAN08 | 27JUN08 |
| C5-3370 | Construction Distribution Canal Cell 5 | 100 | 25FEB08 | 11JUL08 |
| C5-3360 | Construct Disch./Seepage/Collection Canals | 132 | 28JUN08 | 06NOV08 |
| C5-3380 | Construct Cell 5 Inlets | 130 | 28JUN08 | 04NOV08 |
| C5-3400 | Construct Cell 5 Outlet Weirs & Structures | 130 | 28JUN08 | 04NOV08 |
| C5-3340 | Grade Interior Cell 5 | 255 | 28JUN08 | 09MAR09 |
| C5-3440 | Drainage Ditch Cell 5 | 85 | 07NOV08 | 30JAN09 |
| C5-3480 | Sodding Embankments Cell 5 | 65 | 31JAN09 | 05APR09 |






Early Bar
Progress Bar
Critical Activity

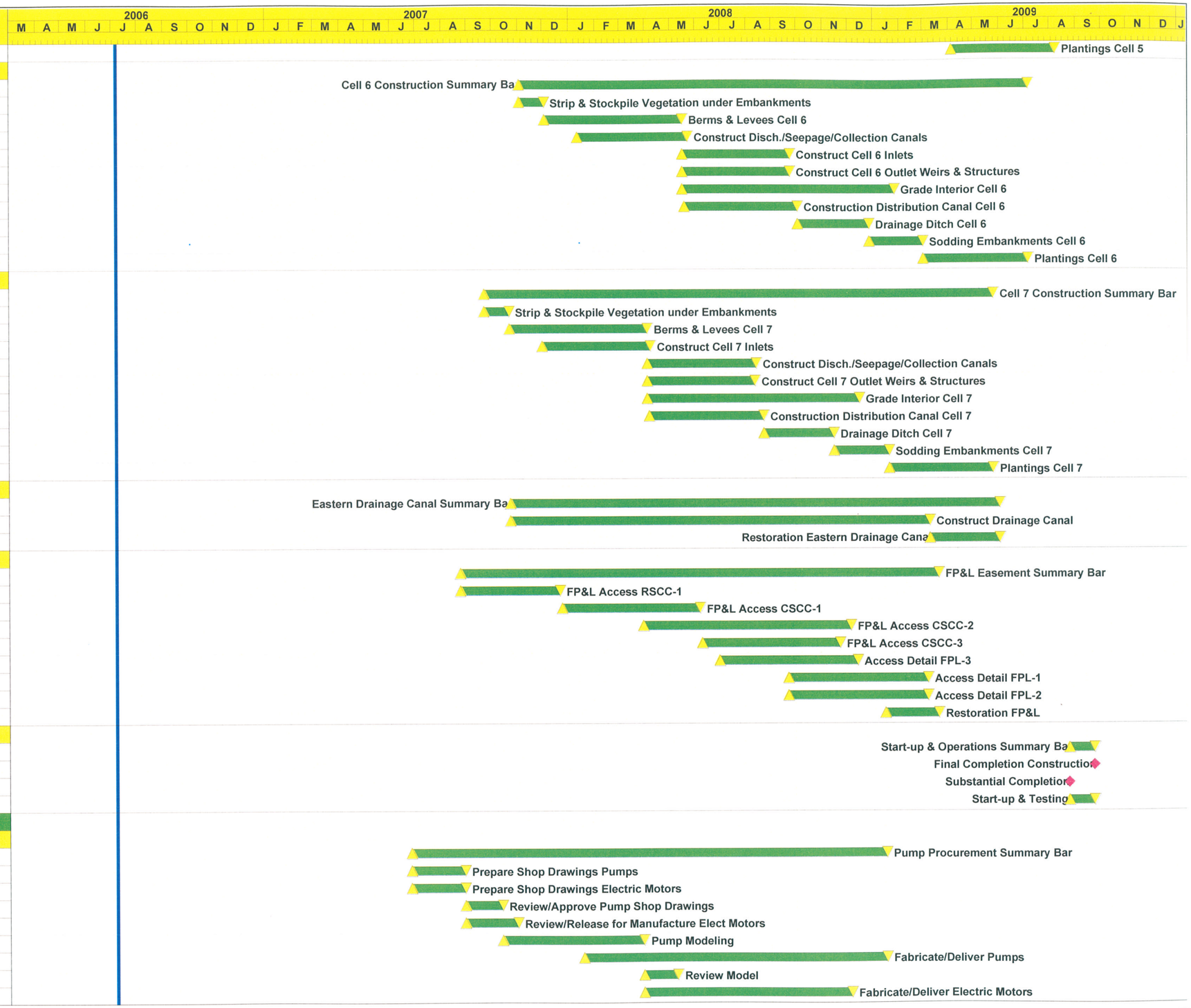
PRE2

C-44 Reservoir & STA's

Preliminary Design
Detail Schedule

07JUL06

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish |
|---|---|---|---|---|
| C5-3410 | Plantings Cell 5 | 90 | 06APR09 | 07AUG09 |
| Cell 6 Construction | | | | |
| C6-3280 | Cell 6 Construction Summary Bar | 612* | 03NOV07 | 06JUL09 |
| C6-3320 | Strip & Stockpile Vegetation under Embankments | 30 | 03NOV07 | 02DEC07 |
| C6-3390 | Berms & Levees Cell 6 | 120 | 03DEC07 | 16MAY08 |
| C6-3360 | Construct Disch./Seepage/Collection Canals | 132 | 12JAN08 | 22MAY08 |
| C6-3380 | Construct Cell 6 Inlets | 130 | 17MAY08 | 23SEP08 |
| C6-3400 | Construct Cell 6 Outlet Weirs & Structures | 130 | 17MAY08 | 23SEP08 |
| C6-3340 | Grade Interior Cell 6 | 255 | 17MAY08 | 26JAN09 |
| C6-3370 | Construction Distribution Canal Cell 6 | 100 | 19MAY08 | 03OCT08 |
| C6-3440 | Drainage Ditch Cell 6 | 85 | 04OCT08 | 27DEC08 |
| C6-3480 | Sodding Embankments Cell 6 | 65 | 28DEC08 | 02MAR09 |
| C6-3410 | Plantings Cell 6 | 90 | 03MAR09 | 06JUL09 |
| Cell 7 Construction | | | | |
| C7-3280 | Cell 7 Construction Summary Bar | 612* | 22SEP07 | 25MAY09 |
| C7-3320 | Strip & Stockpile Vegetation under Embankments | 30 | 22SEP07 | 21OCT07 |
| C7-3390 | Berms & Levees Cell 7 | 120 | 22OCT07 | 04APR08 |
| C7-3380 | Construct Cell 7 Inlets | 130 | 01DEC07 | 08APR08 |
| C7-3360 | Construct Disch./Seepage/Collection Canals | 132 | 05APR08 | 14AUG08 |
| C7-3400 | Construct Cell 7 Outlet Weirs & Structures | 130 | 05APR08 | 12AUG08 |
| C7-3340 | Grade Interior Cell 7 | 255 | 05APR08 | 15DEC08 |
| C7-3370 | Construction Distribution Canal Cell 7 | 100 | 07APR08 | 22AUG08 |
| C7-3440 | Drainage Ditch Cell 7 | 85 | 23AUG08 | 15NOV08 |
| C7-3480 | Sodding Embankments Cell 7 | 65 | 16NOV08 | 19JAN09 |
| C7-3410 | Plantings Cell 7 | 90 | 20JAN09 | 25MAY09 |
| Eastern Drainage Canal | | | | |
| NC3-3370 | Eastern Drainage Canal Summary Bar | 420* | 23OCT07 | 01JUN09 |
| NC3-3350 | Construct Drainage Canal | 360 | 23OCT07 | 09MAR09 |
| NC3-3360 | Restoration Eastern Drainage Canal | 60 | 10MAR09 | 01JUN09 |
| FP&L Power Easement | | | | |
| 3470 | FP&L Easement Summary Bar | 411* | 24AUG07 | 20MAR09 |
| 3460 | FP&L Access RSCC-1 | 120 | 24AUG07 | 21DEC07 |
| 3490 | FP&L Access CSCC-1 | 120 | 24DEC07 | 06JUN08 |
| 3530 | FP&L Access CSCC-2 | 180 | 31MAR08 | 05DEC08 |
| 3510 | FP&L Access CSCC-3 | 120 | 09JUN08 | 21NOV08 |
| 3620 | Access Detail FPL-3 | 120 | 30JUN08 | 12DEC08 |
| 3570 | Access Detail FPL-1 | 120 | 22SEP08 | 06MAR09 |
| 3590 | Access Detail FPL-2 | 120 | 22SEP08 | 06MAR09 |
| 3420 | Restoration FP&L | 65 | 15JAN09 | 20MAR09 |
| Start-up/Closeout | | | | |
| S-3620 | Start-up & Operations Summary Bar | 30* | 25AUG09 | 23SEP09 |
| S-3120 | Final Completion Construction | 0 | | 23SEP09 |
| S-3080 | Substantial Completion | 0 | 25AUG09 | |
| S-3100 | Start-up & Testing | 30 | 25AUG09 | 23SEP09 |
| Reservoir Pump Station Contract | | | | |
| Procure Electric Pumps | | | | |
| 1360 | Pump Procurement Summary Bar | 572* | 25JUN07 | 16JAN09 |
| 1280 | Prepare Shop Drawings Pumps | 65 | 25JUN07 | 28AUG07 |
| 1281 | Prepare Shop Drawings Electric Motors | 65 | 25JUN07* | 28AUG07 |
| 1300 | Review/Approve Pump Shop Drawings | 45 | 29AUG07 | 12OCT07 |
| 1301 | Review/Release for Manufacture Elect Motors | 45 | 29AUG07 | 30OCT07 |
| 3140 | Pump Modeling | 170 | 13OCT07 | 30MAR08 |
| 1340 | Fabricate/Deliver Pumps | 365 | 18JAN08 | 16JAN09 |
| 3150 | Review Model | 30 | 31MAR08 | 09MAY08 |
| 1342 | Fabricate/Deliver Electric Motors | 180 | 31MAR08 | 05DEC08 |

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Early Bar
Progress Bar
Critical Activity

PRE2

C-44 Reservoir & STA's

Preliminary Design
Detail Schedule

07JUL06



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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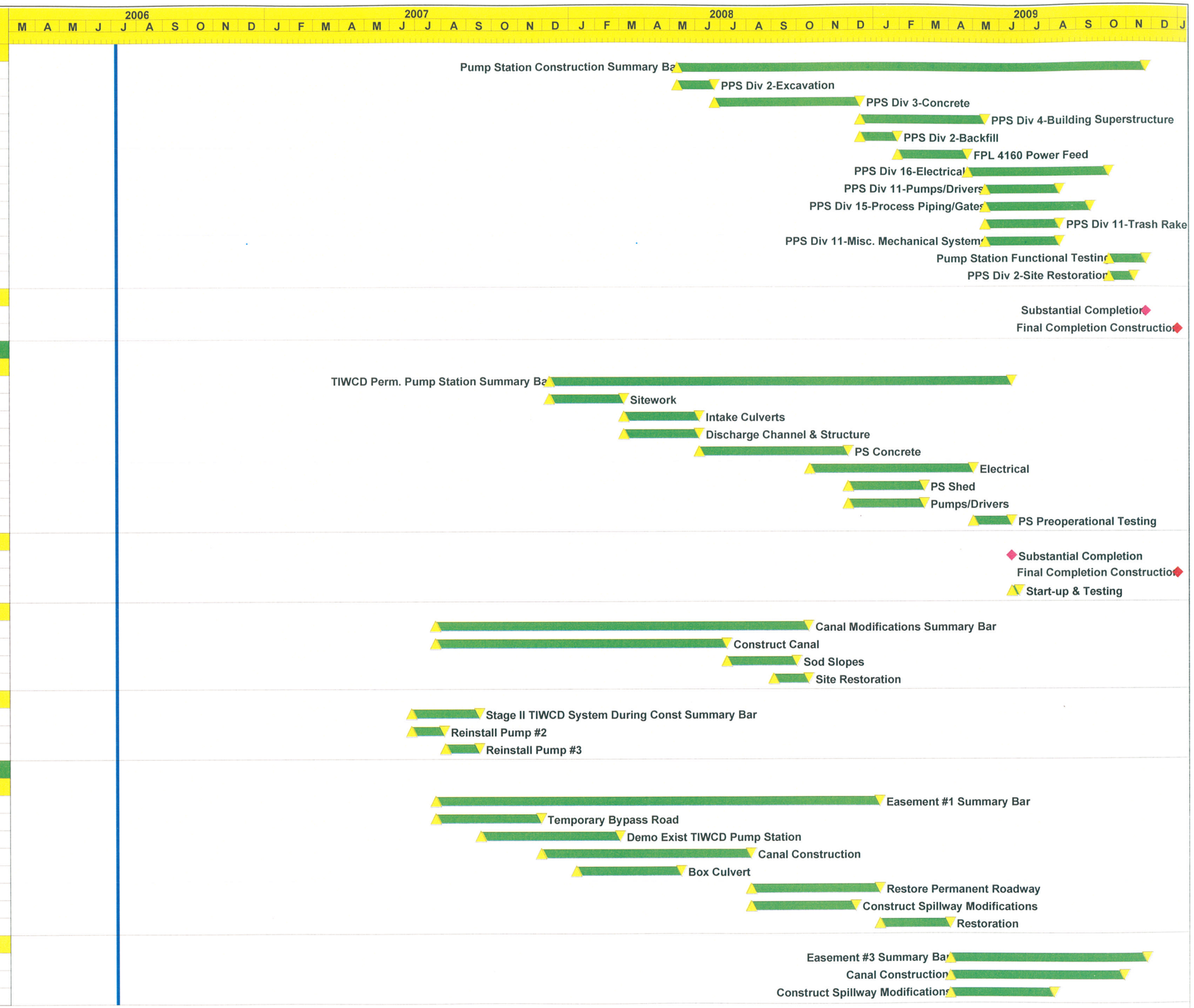
| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish |
|---|---|---|---|---|
| Structure | | | | |
| 1800 | Pump Station Construction Summary Bar | 564* | 10MAY08 | 24NOV09 |
| 1700 | PPS Div 2-Excavation | 45 | 10MAY08 | 23JUN08 |
| 1740 | PPS Div 3-Concrete | 175 | 24JUN08 | 15DEC08 |
| 1760 | PPS Div 4-Building Superstructure | 150 | 16DEC08 | 14MAY09 |
| 1720 | PPS Div 2-Backfill | 45 | 16DEC08 | 29JAN09 |
| 1730 | FPL 4160 Power Feed | 60 | 30JAN09 | 23APR09 |
| 2000 | PPS Div 16-Electrical | 170 | 24APR09 | 10OCT09 |
| 1900 | PPS Div 11-Pumps/Drivers | 90 | 15MAY09 | 12AUG09 |
| 1980 | PPS Div 15-Process Piping/Gates | 90 | 15MAY09 | 17SEP09 |
| 1840 | PPS Div 11-Trash Rake | 90 | 15MAY09 | 12AUG09 |
| 1960 | PPS Div 11-Misc. Mechanical Systems | 90 | 15MAY09 | 12AUG09 |
| 3520 | Pump Station Functional Testing | 45 | 11OCT09 | 24NOV09 |
| 1780 | PPS Div 2-Site Restoration | 30 | 11OCT09 | 09NOV09 |
| Start-up/Closeout | | | | |
| P-3080 | Substantial Completion | 0 | | 24NOV09 |
| P-3120 | Final Completion Construction | 0 | | 31DEC09* |
| TIWCD Permanent Facilities Contract | | | | |
| TIWCD Pump Station | | | | |
| 4020 | TIWCD Perm. Pump Station Summary Bar | 555* | 08DEC07 | 14JUN09 |
| 2400 | Sitework | 90 | 08DEC07 | 06MAR08 |
| 2420 | Intake Culverts | 90 | 07MAR08 | 04JUN08 |
| 3640 | Discharge Channel & Structure | 90 | 07MAR08 | 04JUN08 |
| 2440 | PS Concrete | 180 | 05JUN08 | 01DEC08 |
| 3820 | Electrical | 140 | 17OCT08 | 30APR09 |
| 3760 | PS Shed | 90 | 02DEC08 | 01MAR09 |
| 4040 | Pumps/Drivers | 90 | 02DEC08 | 01MAR09 |
| 3860 | PS Preoperational Testing | 45 | 01MAY09 | 14JUN09 |
| Start-up/Closeout | | | | |
| T-3080 | Substantial Completion | 0 | | 14JUN09 |
| T-3120 | Final Completion Construction | 0 | | 31DEC09* |
| T-3100 | Start-up & Testing | 10 | 15JUN09 | 24JUN09 |
| Distribution Canal | | | | |
| 3870 | Canal Modifications Summary Bar | 320* | 25JUL07 | 14OCT08 |
| 3880 | Construct Canal | 250 | 25JUL07 | 08JUL08 |
| 4240 | Sod Slopes | 60 | 09JUL08 | 30SEP08 |
| 4250 | Site Restoration | 30 | 03SEP08 | 14OCT08 |
| TIWCD Stage II Temp During Construction | | | | |
| 3910 | Stage II TIWCD System During Const Summary | 60* | 25JUN07 | 14SEP07 |
| 3920 | Reinstall Pump #2 | 30 | 25JUN07 | 03AUG07 |
| 3930 | Reinstall Pump #3 | 30 | 06AUG07 | 14SEP07 |
| Easement Improvements Contract | | | | |
| Easement #1 | | | | |
| 3900 | Easement #1 Summary Bar | 532* | 25JUL07 | 06JAN09 |
| 3950 | Temporary Bypass Road | 90 | 25JUL07 | 27NOV07 |
| 4120 | Demo Exist TIWCD Pump Station | 120 | 17SEP07 | 29FEB08 |
| 4140 | Canal Construction | 180 | 28NOV07 | 05AUG08 |
| 4100 | Box Culvert | 90 | 09JAN08 | 13MAY08 |
| 4150 | Restore Permanent Roadway | 110 | 06AUG08 | 06JAN09 |
| 4130 | Construct Spillway Modifications | 90 | 06AUG08 | 09DEC08 |
| 4110 | Restoration | 60 | 07JAN09 | 31MAR09 |
| Easement #3 | | | | |
| 3940 | Easement #3 Summary Bar | 238* | 01APR09 | 24NOV09 |
| 4190 | Canal Construction | 150 | 01APR09 | 27OCT09 |
| 4230 | Construct Spillway Modifications | 90 | 01APR09 | 04AUG09 |

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Early Bar
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Critical Activity

PRE2

C-44 Reservoir & STA's

Preliminary Design
Detail Schedule

07JUL06



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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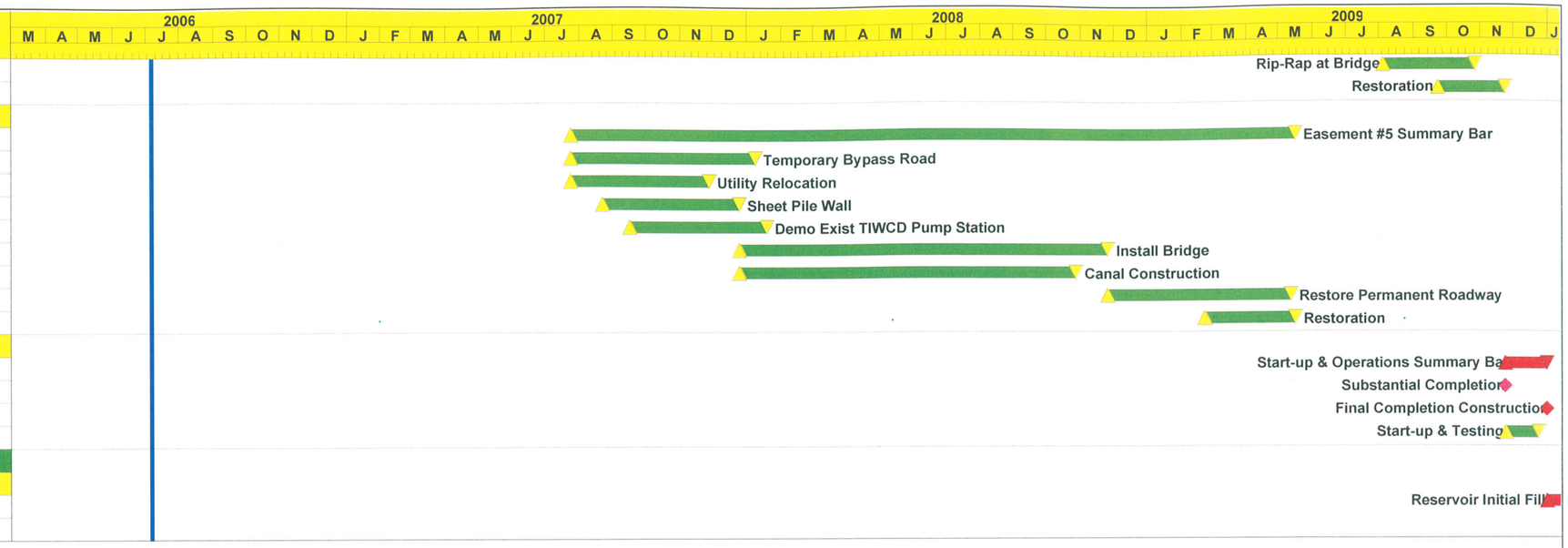
| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish |
|---|---|---|---|---|
| 4170 | Rip-Rap at Bridge | 60 | 05AUG09 | 27OCT09 |
| 4210 | Restoration | 45 | 23SEP09 | 24NOV09 |
| Easement #5 | | | | |
| 3960 | Easement #5 Summary Bar | 661* | 25JUL07 | 15MAY09 |
| 3970 | Temporary Bypass Road | 120 | 25JUL07 | 08JAN08 |
| 4080 | Utility Relocation | 90 | 25JUL07 | 27NOV07 |
| 4030 | Sheet Pile Wall | 90 | 22AUG07 | 25DEC07 |
| 4010 | Demo Exist TIWCD Pump Station | 90 | 17SEP07 | 18JAN08 |
| 3990 | Install Bridge | 240 | 26DEC07 | 25NOV08 |
| 4070 | Canal Construction | 220 | 26DEC07 | 28OCT08 |
| 4090 | Restore Permanent Roadway | 120 | 26NOV08 | 12MAY09 |
| 4050 | Restoration | 60 | 23FEB09 | 15MAY09 |
| Start-up/Closeout | | | | |
| E-3620 | Start-up & Operations Summary Bar | 37* | 25NOV09 | 31DEC09 |
| E-3080 | Substantial Completion | 0 | | 24NOV09 |
| E-3120 | Final Completion Construction | 0 | | 31DEC09* |
| E-3100 | Start-up & Testing | 30 | 25NOV09 | 24DEC09 |
| Operations (BY DISTRICT) | | | | |
| 3980 | Reservoir Initial Fill | 28 | 01JAN10 | 28JAN10 |
| 2620 | Operate Facility | 1,095 | 29JAN10 | 27JAN13 |



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